Mobility Strategies for Adult Hospitalized Patients on Medical/Surgical and Critical Care Units

Mobility Tools, Scales, and Instruments from the Evidence

Clinical Question: “What are the current tools used for assessing and scoring ambulation/mobility for hospitalized adults on Critical Care Units and Medical/Surgical Units?”

Results: 41 unique tools, scales, and instruments were identified for the assessment and scoring of ambulation/mobility and function for hospitalized adults. The tools were grouped into three distinct categories: (1) performance-based ambulation, (2) information-based ambulation, and (3) mobility/functional measures other than ambulation. Category components included tool name, description, administration, psychometrics, and access/resources information.

There are multiple instruments for ambulation/mobility assessment for community dwelling adults and adults in rehabilitation, sub-acute, and convalescent settings. However, many of these tools have not been tested in the acute care environment. Despite the lack of testing, some ambulation/mobility measures are being used in the acute care environment, such as the 2 Minute Walk Test, the 6 Minute Walk Test, and the Functional Independence Measure (FIM). It must be noted that some tools have been developed for targeted patient populations and may not be applicable and/or generalizable for all patient populations (e.g. Dionne’s Egress Test, Elderly Mobility Scale, Postural Assessment for Stroke Scale). Although the FIM tool has been described as the “gold standard” for assessing ADLs, other experts believe no gold standard or criterion measure for ambulation or functional status currently exits. Nonetheless, quality patient care demands the careful evaluation and selection of appropriate tools to assess and measure patient ambulation during the hospital experience.

Context of Mobility and Ambulation: Mobility is defined differently by physical therapists (PT) and nurses. PT’s terminology focuses on the assessment and management of problems with movement. This narrow focus does not include the breadth or depth of nursing care. Mobility is more than physical performance of lower extremities. Mobility is a broad activity that involves limb movement, trunk strength, and changing from a horizontal to a vertical position before ambulation can be attempted. Ambulation is a distinct mobility activity that involves the ability to walk from place to place and ranges from dependent to completely independent. Successful ambulation demands adequate cognition, balance, vision, joint position sense, strength, speed, endurance, and the ability to adapt to one’s environment.

Performance-Based Ambulation Tools: Ambulation tests and their tools should be concise, efficient, simple, and easy to comprehend. The following tools were determined to be psychometrically strong, user-friendly, need minimal equipment and/or environmental modification, can be administered in less than 5 minutes, and yield quantitative results specific to ambulation:

- 2-Minute Walk Test (2MWT)
- 10 Meter Walk Test (10MWT)
- Functional Ambulation Category scale (FAC)
- Timed Get Up and Go (TUG)

The specific sections below will be found on the following pages:
1. Performance-Based Ambulation: Page 2 to Page 23
2. Informant-Based Ambulation: Page 24 to Page 28
3. Mobility/Functional Measures (other than ambulation): Page 29 to Page 41
4. Reference List: Page 42 to Page 45
5. Database Search Methodology: Page 46 to Page 48
6. Appendices for 2MWT, 10MWT, FAC, and TUG: Page 49 to 53

Cecelia L. Crawford, DNP, RN; ©Kaiser Permanente SCAL Regional Nursing Research Program; November 14, 2013; Updated April 2014
<table>
<thead>
<tr>
<th>Instrument/Tool/Scale</th>
<th>Description</th>
<th>Administration</th>
<th>Psychometrics</th>
<th>Access/Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 2-Minute Walk Test: Exercise tolerance and exercise capacity&lt;sup&gt;17&lt;/sup&gt;</td>
<td>Performance-based distance test involving a 2-minute walk without assistance at the fastest speed possible • Assistive devices can be used but should be kept consistent and documented from test to test • If physical assistance is required test should not be performed • A measuring wheel is helpful to determine distance walked</td>
<td>Administered in 2 minutes or less by: Physical therapist</td>
<td>Excellent test/retest reliability (*ICC=0.83 to 0.98)&lt;sup&gt;26&lt;/sup&gt; Poor intra-rater reliability for multiple sclerosis patients&lt;sup&gt;26&lt;/sup&gt; Excellent interrater reliability (ICC=0.85 to 0.99)&lt;sup&gt;26&lt;/sup&gt; Adequate to excellent criterion validity (&lt;i&gt;r&lt;/i&gt;= 0.48 to 0.93)&lt;sup&gt;26&lt;/sup&gt; Adequate to excellent construct validity (&lt;i&gt;r&lt;/i&gt;= 0.35 to 0.97)&lt;sup&gt;26&lt;/sup&gt; Face validity and floor/ceiling effects not established&lt;sup&gt;26&lt;/sup&gt; *Interclass Correlation Coefficient</td>
<td><a href="http://www.rehabmeasures.org/PDF%20Library/2%20Minute%20Walk%20Test%20Instructions.pdf">http://www.rehabmeasures.org/PDF%20Library/2%20Minute%20Walk%20Test%20Instructions.pdf</a></td>
</tr>
</tbody>
</table>

Cecelia L. Crawford, DNP, RN; ©Kaiser Permanente SCAL Regional Nursing Research Program; November 14, 2013; Updated April 2014
| 2. 6-Minute Walking Distance (6MWD) | Performance-based common walk test measure of functional exercise capacity for patients with cardiopulmonary disease, post-ICU discharge patients and patients with chronic disease; has also been used for patients with spinal cord injuries  
   - Performed as a self-paced test in which the patient walks as far as possible in six minutes on a flat track  
   - Recommend track length = 30m; 20-50m and circular tracks have been used  
   - 2 walk tests at each assessment to account for learning effect  
   - Patient can stop and rest, but counted within the six minutes  
   - Reflects functional capacity in respiratory or cardiac diseases  
   - #Note: Assistive devices can be used, but must be kept consistent from test to test | Administered in 6 minutes by: Physical therapist | Excellent test-retest (*ICC = 0.80 to 0.99)  
   - Adequate to Excellent inter-observer reliability (ICC = 0.74 to 0.99)  
   - Adequate to Excellent intra-rater reliability (ICC = 0.78 to 0.99)  
   - Construct validity  
   - *Interclass Correlation Coefficient  
   - Correlated strongly with walking time ($r = 0.76$) and walking intensity ($r = 0.62$) in daily life of COPD patients  
   - Responsive tool able to detect changes in ambulation over a  |

Cecelia L. Crawford, DNP, RN; ©Kaiser Permanente SCAL Regional Nursing Research Program; November 14, 2013; Updated April 2014
### Mobility Strategies for Adult Hospitalized Patients on Medical/Surgical and Critical Care Units

*Mobility Tools, Scales, and Instruments from the Evidence*

| 3. 10 Meter Walk Test (10MWT)\(^{19;44}\) | Measure of gait training; involves calculating time required to walk a 10 meter walkway. An increase in gait speed is positively correlated with an improved level of mobility in elderly people.  
- Three methods:  
  ○ Measurement based on walking the full walkway | Administered in 5 minutes or less by:  
- Physical Therapist | Excellent test-retest reliability\(^{19}\) (*ICC = 0.82 to 0.99)*  
- Excellent inter-observer reliability\(^{19}\) (ICC = 0.95 to 0.99)\(^{26}\)  
- Excellent intra-rater reliability (ICC = 0.98 to 0.99)\(^{26}\) | [http://www.rehabmeasures.org/PDF%20Library/10%20Meter%20Walk%20Test%20Instructions.pdf](http://www.rehabmeasures.org/PDF%20Library/10%20Meter%20Walk%20Test%20Instructions.pdf) |
<p>| Measurement accounts for acceleration and deceleration and only measures the middle 6 meters | Reported to yield reliable and concurrent valid measurements of gait speed in stroke patients(^4) |
| “Flying Start:” Patient walks 14 meters and only last 10 meters is measured | High interrater reliability in subjects without impairment (ICC(^*) = 0.980)(^4) |
| | High interrater reliability in subjects with strokes (ICC = 0.998)(^4) |
| | *Interclass Correlation Coefficient |
| | Construct validity Poor to very strong,(^1)(^9) depending upon the patient population and comparison(^2)(^6) |
| | Responsive tool able to detect changes in ambulation over a |</p>
<table>
<thead>
<tr>
<th>No.</th>
<th>Tool/Measurement</th>
<th>Description</th>
<th>Period of time (measured in months)</th>
<th>Ceiling Effect</th>
<th>Additional Information</th>
<th>Reference</th>
</tr>
</thead>
</table>
| 4.  | **Barthel Index**<sup>2;6;7;9;40</sup> (Mahoney, 1955)                       | Performance-based 15 item physical function outcome test that assesses and measures 10 activities in daily living to determine patient independence.  
  - Measurement on a 0 to 2 scale  
    - Score range from 18 to 126<sup>9</sup>  
    - Another cited measurement was an ordinal index scale 0 to 100<sup>6</sup>  
  - Feeding, transfers, personal hygiene, toilet transfers, bathing, walking, stairs, dressing, bladder/bowel continence  
  - Has been used in critical care settings  
  - Used as a reference of what patient can do, not what patient could do  
  - Administered in 5 to 20 minutes by:  
    - Multi-disciplinary Physiotherapist  
    - Occupational Therapist  
    - Nurse  
  - Reliability, inter-observer and test-retest reliability, overall utility rated good to excellent<sup>6;40</sup>  
  - Interrater reliability ranges from adequate to excellent (Kappa = 0.53 to 0.94; *ICC = 0.94)<sup>26</sup>  
  - *Interclass Correlation Coefficient  
  - Validity has been widely tested and well established for rehabilitation patients<sup>6</sup>  
  - Excellent internal consistency, criterion validity, and construct validity<sup>26</sup>  
| 5. Dynamic Gait Index | Performance-based test assessing a person’s ability to modify balance while walking in the presence of external demands on a marked distance of 20 feet.  
- Scores range from 0 (severe impairment) to 3 (no gait impairment)  
- Highest score = 24  
- Tasks include steady walking, changing speed, head turns, stepping over and around obstacles, pivoting, and stair climbing  
- Can be performed with an assistive device | Administered in 10 minutes or less minutes (may vary by patient) by: Physical therapist | Limited by a floor effect and lack of sensitivity to change$^6$  
Administered in 10 minutes or less minutes (may vary by patient) by: Physical therapist | Adequate to excellent test-retest reliability (*ICC = 0.65 to 1.00)$^{26}$  
Excellent inter-rater reliability (ICC = 0.82 to 0.98)$^{26}$  
Excellent intra-rater reliability (ICC = 0.76 – 0.98)$^{26}$  
*Interclass Correlation Coefficient  
Adequate to excellent criterion and construct validity$^{26}$  
Little ceiling effect$^{26}$  
Sensitivity = 0.68  
Specificity = 0.708 (for Parkinson’s Disease patients)$^{26}$ |
| 6. Emory Functional Ambulation Profile (E-FAP)\(^{44}\) | Performance-based test designed to provide quantitative information about ambulation and function by measuring time to walk over a standardized array of surfaces and obstacles and accounts for the use of an assistive device. 5 subtasks represent environmental challenges commonly encountered in everyday life:  
• 5 meter walk on a floor and then a carpet  
• An “up and go” task  
• Negotiating an obstacle course  
• Stair climbing  
• Number of seconds to complete each subtask is multiplied by a factor corresponding to the level of assistive device  
• 5 subtasks are summed to yield the E-FAP total score  
• Subtasks can be arranged to minimize patient fatigue  
• Inexpensive and quantitative | Administered in less than 20 minutes by:  
Physical therapist | Excellent test-retest reliability (*ICC = 0.97 to 0.99)\(^{26}\)  
High interrater reliability in subjects without impairment (ICC = 0.997\(^{44}\) to 0.99)\(^{26}\)  
High interrater reliability in subjects with strokes (ICC = 0.999)\(^{44}\)  
*Interclass Correlation Coefficient  
Excellent criterion and construct validity\(^{26}\)  
Concurrent validity of E-FAP is supported by correlation of E-FAP score with scores on 10MWT and Berg Balance Test\(^{44}\) (Note: Berg Balance Test uses...
<table>
<thead>
<tr>
<th></th>
<th>Mobility Tools, Scales, and Instruments from the Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Elderly Mobility Scale (EMS)(^22,25,28)</td>
</tr>
<tr>
<td></td>
<td>20 point validated assessment tool for frail hospitalized elderly subjects. Evaluates mobility through seven functional activities including bed mobility, transfers and bodily reaction to perturbation.</td>
</tr>
<tr>
<td></td>
<td>• Gait assessed on type of assistance required to walk. (Maximum points = walk safely without assistance or device)</td>
</tr>
<tr>
<td></td>
<td>• Speed of sit to stand and walking speed evaluated</td>
</tr>
<tr>
<td></td>
<td>Administered in 15 minutes by: Physiotherapist</td>
</tr>
<tr>
<td></td>
<td>Interrater reliability = 0.88 (Note: As a Fall Risk Assessment tool)(^28)</td>
</tr>
<tr>
<td></td>
<td>Documented as having excellent inter-rater reliability, as well as predictive and concurrent validity(^22,25)</td>
</tr>
<tr>
<td></td>
<td>Responsiveness to change, sensitivity, and specificity not</td>
</tr>
<tr>
<td></td>
<td><a href="Elderly%20Mobility%20ScaleV2.pdf">Elderly Mobility ScaleV2.pdf</a></td>
</tr>
<tr>
<td></td>
<td>Mobility Strategies for Adult Hospitalized Patients on Medical/Surgical and Critical Care Units</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>8.</td>
<td>Elderly Mobility Scale (Modified) (MEMS)</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Functional Ambulation Category (FAC) scale</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Cecelia L. Crawford, DNP, RN; ©Kaiser Permanente SCAL Regional Nursing Research Program; November 14, 2013; Updated April 2014
## Mobility Strategies for Adult Hospitalized Patients on Medical/Surgical and Critical Care Units

**Mobility Tools, Scales, and Instruments from the Evidence**

| 10. Functional Ambulation Classification<sup>6,7</sup> | A scale of 1 to 6 to evaluate a patient’s ability to ambulate a 10 foot distance; does not assess endurance.  
- 1 = unable/assistance from more than 1 person  
- 6 = Independent on uneven surfaces, stairs, inclines  
- Better measure for medical rehabilitation patients; has been used in critical care | Administered in 1 minute by: Physiotherapist | [http://www.rehabmeasures.org/PDF%20Library/Functional%20Ambulation%20Category%20Test%20Instructions.pdf](http://www.rehabmeasures.org/PDF%20Library/Functional%20Ambulation%20Category%20Test%20Instructions.pdf) |
|---|---|---|---|
| 11. Functional Independence Measure (FIM)<sup>8,17,19,21,26,27,40</sup> (Granger, 1987) | Physical function test that assesses functional status in 7 areas and 18 different movements over a 72 hour period. Using a 7 point ordinal scale (from total assistance to complete independence). Used in a variety of healthcare settings.  
- Includes self-care, locomotion, communication, social cognition, cooperation, problem-solving, sphincter control  
- 13 motor tasks, 5 cognitive tasks | Administered in 30 to 45 minutes by:  
- Physiotherapist  
- Multi-disciplinary team | Often considered the “gold standard” for assessing activities of daily living<sup>19</sup>  
Reliability, validity, and responsiveness has consistently been found to be > 0.85 *ICC<sup>21</sup>  
Excellent test-retest reliability (ICC = 0.80 to 0.98<sup>26</sup>)  
*Interclass Correlation Coefficient  
[http://www.tbims.org/combi/FIM/index.html](http://www.tbims.org/combi/FIM/index.html) (trade marked tool) |
## Mobility Strategies for Adult Hospitalized Patients on Medical/Surgical and Critical Care Units

*Mobility Tools, Scales, and Instruments from the Evidence*

<table>
<thead>
<tr>
<th>12. Functional Independence Measure (Modified)(^{19,21})</th>
<th>Modified FIM tool to solely examine and measure mobility and address the needs of the acute care population. Assess burden of care and functional impairment across a range of domains. Likert scale score range from 1 (total assistance) to 7 (independent) for each movement of:</th>
<th>Administered in 30 to 45 minutes by: Physiotherapist Multi-disciplinary team</th>
<th>Literature has repeatedly demonstrated the validity and reliability of modified versions of FIM(^{21})</th>
<th>Unable to obtain</th>
</tr>
</thead>
</table>

Excellent internal consistency (Cronbach’s \(a = 0.91\) to 0.98)\(^{26}\)  
Reliable in detecting functional change in inpatient settings\(^{40}\)  
Minimal ceiling effect noted on FIM motor and cognitive scale\(^{26}\)  
Psychometric properties could be improved if 7 point scale was reduced to a 4 or 5 point scale\(^{19}\)
### Mobility Strategies for Adult Hospitalized Patients on Medical/Surgical and Critical Care Units

**Mobility Tools, Scales, and Instruments from the Evidence**

- Supine to sit
- Sit to supine transfers
- Stand pivot out of bed transfers (as appropriate)
- Sliding board or transfer (as appropriate)
- Sit to stand transfer
- Stand to sit transfer
- Distance ambulated in feet
- Does not consider the use of assistive devices to enable independence
- Wheelchair use is a scoring option

#### 13. Glittre Activities of Daily Living (ADL) Test

- Easily administered physical function test that assesses patients with chronic obstructive pulmonary disease (COPD)
- 5 laps of a 10 meter walk with steps and carrying, lifting, bending down and rising from a seated position using a time-measurement

- Administered in 2 to 14 minutes (may vary by patient) by:
  - Physician
  - Occupational Therapist

- Glittre ADL Test yields information complementary to 6MWD (arm function assessed in 6MWD)

- Valid, reliable, and responsive measure of functional status in COPD patients

- Unable to obtain

#### 14. High-level Mobility Assessment Tool (HiMAT)

- Originally developed to measure and quantify the physical ability and high-level mobility limitations of people with TBI; has been validated for use in

- Administered in 5 to 10 minutes by:
  - Physiotherapist

- For persons with neurological conditions and mild traumatic brain injury

- [http://www.tbims.org/combi/himat/HiMAT.pdf](http://www.tbims.org/combi/himat/HiMAT.pdf)
| Mobility Strategies for Adult Hospitalized Patients on Medical/Surgical and Critical Care Units  
*Mobility Tools, Scales, and Instruments from the Evidence* |
|---|---|
| patients with mild TBI and neurological conditions. Does not test cognitive demands for functional mobility tasks.  
- A unidimensional performance-based test that measures mobility with either 8 or 13 items on a 0 to 4 scale  
  - Exception for 8 item test: 2 dependent stair items rated on a 6 point system of 0 to 5  
- 8 item test: Maximum composite score of 32 (higher = better performance)  
  - Sum score ranges from 0 to 54  
- 8 item test: Activities include a 10 meter walk test, running, skipping, hopping, and jumping  
- 13 item test: Minimum mobility is independent walking over 20 meters without gait aids  
  - Orthoses are permitted  
  - Includes walking, running, jumping, balance, stairs, hopping, skipping  | consistency via Person Separation Index = 0.9126²⁶;⁴²  
- High internal consistency (Cronbach’s α ≥0.95)²⁶;⁴²  
- High interrater reliability (*ICC = 0.88 to 0.99)*¹⁶;²⁶  
- High intra-rater reliability (*ICC = 0.95)*¹⁶  
- Adequate to excellent concurrent validity²⁶  
- Ceiling effect ranges from 0 to 55.1%¹⁶;²⁶;⁴² (55.1% healthy males compared to 5.5% healthy females²⁶)  
*ICC = Interclass Correlation Coefficient* |
### Mobility Strategies for Adult Hospitalized Patients on Medical/Surgical and Critical Care Units

**Mobility Tools, Scales, and Instruments from the Evidence**

| 15. Incremental Shuffle (Shuttle) Walk Test (ISWT)\(^5;^9\) | Externally paced walk test in which patient walks around 2 cones placed 9 meters apart, with a total track length of 10 meters  
- Initial speed is slow; work rate (velocity) increases every minute  
- Continues until patient indicates need to stop or can no longer keep up the external auditory pacing  
- ICU environment may be impractical re: 10m track, auditory pacing, turning around cones while attached to equipment  
- Used to assess post-ICU patients and chronic heart failure patients | Administered in 15 to 45 minutes (may vary by patient) by: Physical therapist | Excellent inter-rater reliability for heart failure patients, particularly as examiner becomes familiar with the tool\(^5\) (*ICC = 0.84 to 0.86) | [http://pt.unlv.edu/ebpt/tests/Ambulation/Shuttle%20Walk%20Test%20(SWT).pdf](http://pt.unlv.edu/ebpt/tests/Ambulation/Shuttle%20Walk%20Test%20(SWT).pdf) |
|---|---|---|---|---|
| 16. Katz Activities of Daily Living (ADL) scale\(^3;^13;^41;^43\) (Katz, 1959) | 6 item assessment tool that evaluates ADL on hospital admission and discharge in a variety of healthcare settings, and includes bathing, dressing, toileting, eating, transferring, and walking across a small room. Measures on 3 levels on score of 0 to 6 (higher | Administered in 5 to 10 minutes by: Nurse | Excellent reliability, validity, predictive validity, and sensitivity to change for hospital patients\(^3\)  
Reliability coefficients for internal consistency are good and range | [http://evidence2practice.org/topics/index.htm](http://evidence2practice.org/topics/index.htm)  
[Katz IADLs.doc](Katz IADLs.doc)  
[Validity Reliability_Katz ADL I](Validity Reliability_Katz ADL I) |
| 17. Mobility Classification Tool\(^3\) | 5 level tool used to classify a patient’s mobility level, with subcategories A, B, C | Administered in 15 minutes by: | Interrater reliability = 0.86\(^3\) 
Construct validity: |
|-----------------------------|-------------------------------------------------|--------------------------|-----------------------------|
| score = greater independence): | • No help needed 
• Help needed 
• Unable to do | from 0.87 to 0.84\(^4\) 
Low interrater reliability\(^4\) 
Coefficient of Scalability ranges from 0.60 to 0.88\(^4\) 
Construct validity via factor analysis: single factor with all item correlations, with factor being ≥ 0.5\(^4\) 
Good content validity\(^4\) 
Good predictive validity for mortality\(^4\) 
Convergent or concurrent validity is high, with a correlation 0.95 between Activity Index and Katz Index\(^4\) |
Mobility Strategies for Adult Hospitalized Patients on Medical/Surgical and Critical Care Units

Mobility Tools, Scales, and Instruments from the Evidence

<table>
<thead>
<tr>
<th>Nurse</th>
<th>Strong relationship of admission and discharge mobility levels to discharge location ($X^2 = 17.31, p=0.002$). Mobility level at admission significantly associated with discharge to nursing home ($X^2 = 2.53, p=0.014$). Good construct validity re: association with admission ADLs, IADLs, MMSE, and HARP. Predictive validity: Strong association of admission and discharge mobility levels strongly correlated with discharge ADL’s ($r=0.66, p=0.000$). Ceiling effect possible; adding distance walked and time to walk</th>
</tr>
</thead>
<tbody>
<tr>
<td>describing the degree of assistance or independence: 1 = bedbound 2 = Bed to chair with no weight bearing 3 = Bed to chair with partial weight bearing 4 = Assisted (hands on) full weight bearing 5 = Walks without assistance o A = Maximum restriction or dependence o B = Midlevel between A and C o C = Least restricted/least dependent</td>
<td>Nurse</td>
</tr>
</tbody>
</table>

Cecelia L. Crawford, DNP, RN; ©Kaiser Permanente SCAL Regional Nursing Research Program; November 14, 2013; Updated April 2014
| Mobility Strategies for Adult Hospitalized Patients on Medical/Surgical and Critical Care Units |
| Mobility Tools, Scales, and Instruments from the Evidence |

<table>
<thead>
<tr>
<th>Tool/Scale/Instrument</th>
<th>Description</th>
<th>Administered by</th>
<th>Intra-observer reliability or notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>18. Physical Performance and Mobility Examination (PPME)</strong>&lt;sup&gt;39&lt;/sup&gt;</td>
<td>Measures of bed mobility, transfer skills, multiple stands from a chair, standing balance, step-up ability, and ambulation</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Relevant for post hip fx patients and older people</td>
<td>Physiotherapist</td>
<td>High interrater reliability for older people with hip fx (ICC = 0.96)&lt;sup&gt;29&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>• Assistance and time taken for each category and quantified/scoring on a 3 level score, with a maximum score of 12</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• High pass – 2</td>
<td></td>
<td>Unable to obtain</td>
</tr>
<tr>
<td></td>
<td>• Low pass – 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Fail – 0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| **19. Short Physical Performance Battery (SPPB)**<sup>37;45</sup>                    | Functional test that measures gait speed (8 foot walk), standing balance, lower extremity strength, and endurance (multiple chair rises). Each test scored on scale of 0 to 4, with a summary |
|                                                                                      | Administered in 2 minutes or less by: Physical therapist                                         | Intra-observer reliability ranged from (*ICC = 0.83 to 0.89)<sup>45</sup> |
|                                                                                      |                                                                                                 |                                                     | SPPB is a valid and reliable tool for two populations (rural |

Cecelia L. Crawford, DNP, RN; ©Kaiser Permanente SCAL Regional Nursing Research Program; November 14, 2013; Updated April 2014
| Mobility Strategies for Adult Hospitalized Patients on Medical/Surgical and Critical Care Units  
<table>
<thead>
<tr>
<th>Mobility Tools, Scales, and Instruments from the Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mobility Tools, Scales, and Instruments from the Evidence</strong></td>
</tr>
<tr>
<td><strong>score range of 0 to 12.</strong></td>
</tr>
<tr>
<td>• 8 foot walk: Walk at normal pace over a flat 8 foot walking surface marked by traffic cones</td>
</tr>
<tr>
<td>• Standing balance: 3 different static positions that patient holds for 10 seconds</td>
</tr>
<tr>
<td>o Feet side by side</td>
</tr>
<tr>
<td>o Semi-tandem (side of heel touching big toe of other foot)</td>
</tr>
<tr>
<td>o Full tandem (heel in front of and touching toes of other foot)</td>
</tr>
<tr>
<td>• Chair rise: Stand up and sit down 5 times in a row as quickly as possible</td>
</tr>
<tr>
<td>Brazil; suburban Canada)(^4)</td>
</tr>
<tr>
<td>*Interclass Correlation Coefficient</td>
</tr>
<tr>
<td><strong>Performance-based walking test that measures mobility, balance, gait, transfer ability, walking using a stop watch. Scores range from 1 to 5, based on observer’s perception of patient’s risk of falling. Low score = greater functional independence.</strong></td>
</tr>
<tr>
<td><strong>Stand from sitting in</strong></td>
</tr>
<tr>
<td><strong>Administered in 3 minutes by:</strong></td>
</tr>
<tr>
<td>Physiotherapist</td>
</tr>
<tr>
<td>Nurse</td>
</tr>
<tr>
<td>Allied health assistant</td>
</tr>
<tr>
<td>Adequate to excellent test-retest(^19;26;40) (*ICC = 0.50 to 0.98)(^26)</td>
</tr>
<tr>
<td>Moderate to high inter-observer reliability(^19;26;28;40) (*ICC = 0.56 to 0.91)(^26;28)</td>
</tr>
<tr>
<td><strong>Adequate to excellent test-retest</strong></td>
</tr>
<tr>
<td><strong>Moderate to high inter-observer reliability</strong></td>
</tr>
<tr>
<td><strong><a href="http://www.hospitalmedicine.org/geriresource/toolbox/pdfs/get_up_and_go_test.pdf">http://www.hospitalmedicine.org/geriresource/toolbox/pdfs/get_up_and_go_test.pdf</a></strong></td>
</tr>
<tr>
<td><strong><a href="http://evidence2practice.org/topics/index.htm">http://evidence2practice.org/topics/index.htm</a></strong></td>
</tr>
<tr>
<td><strong><a href="http://www.saskatoonhealthregion.ca/pdf/03_Timed%20Up%20and%20Go%20procedure.pdf">http://www.saskatoonhealthregion.ca/pdf/03_Timed%20Up%20and%20Go%20procedure.pdf</a></strong></td>
</tr>
<tr>
<td><strong><a href="http://web.missouri.edu/~proste/tool/tug/Timed-">http://web.missouri.edu/~proste/tool/tug/Timed-</a></strong></td>
</tr>
</tbody>
</table>
| Chair, walk 3m at regular pace, turn, walk back to chair, sit in chair at their preferred speed  
| Assistive devices can be used, but must be consistent for every test  
| Should be allowed one practice trial not included in score  
| Time requirements range from <20 seconds; 20-39 seconds; >40 seconds; other measures consider normal = < 10 seconds; abnormal > 20 seconds  
| Used to assess patient post ICU  
| Time score correlates with log transformed score of the Barthel Index  
| Modified from Get Up and Go test | High intra-rater reliability\(^{26,40}\) (ICC = 0.87)\(^{26}\)  
| *Interclass Correlation Coefficient  
| High sensitivity + specificity\(^{40}\)  
| Construct validity adequate to very strong\(^{19,26}\)  
| Responsive tool able to detect changes in ambulation over a period of time (measured in months)\(^{19}\)  
| No ceiling effect\(^{19}\)  
| Poor floor effects\(^{8,26}\)  
| May fail to capture small changes in function of the activity being measured\(^{8}\) | Up-and-Go.doc |
### Mobility Strategies for Adult Hospitalized Patients on Medical/Surgical and Critical Care Units

#### Mobility Tools, Scales, and Instruments from the Evidence

| 21. Tinetti Performance Oriented Mobility Assessment (POMA)\(^{35,40}\) | Performance-based 16 item mobility consisting of 9 balance items (POMA-B) and 7 gait items (POMA-G). Used for quantitative assessment of balance and gait. Used for fall risk assessment. Testing measuring gait and balance using a 3 point ordinal scale, ranging from 0-2 (0 = high impairment; 2 = high independence). Sections include:

- Chair (sitting down, sitting balance, arising, immediate standing balance)
- Stand (side by side, pull test)
- Bare floor (initiation of gait on different surfaces)
- Path (excursion of foot over 8 feet)
- Missed step (trip or loss of balance)
- Turning while walking
- Step over obstacles | Administered at the bedside in 10 to 15 minutes (POMA-B 160 seconds) by:

- Physical therapist
- Physiotherapist | Excellent test-retest reliability (*ICC = 0.72 to 0.91\(^{26}\))

Adequate to excellent interrater reliability\(^{26,40}\) (ICC = 0.40 to 0.97; Kappa = 0.43 to 1.0\(^{26}\))

Adequate to excellent intra-rater reliability (ICC = 0.69 to 0.86; Kappa = 0.40 to 1.0\(^{26}\))

*Interclass Correlation Coefficient

Not sensitive enough to pick up some function changes\(^{40}\)

Sensitivity ranges from 64% to 85%, depending on the patient population and POMA items\(^{26}\)

Specificity ranges from 51% to 79%, |

---


---

Cecelia L. Crawford, DNP, RN; ©Kaiser Permanente SCAL Regional Nursing Research Program; November 14, 2013; Updated April 2014
| 22. University of Rochester Acute Care Evaluation (URACE)\(^4,8,38\) (DiCicco & Whalen, 2010) | A scoring system that grades patient’s independence with bed mobility, supine-to-sit, transfers (bed to chair), locomotion, and stairs, with or without assistive devices. This outcome measure was created to objectively assess an individual’s function while in the acute care setting. | Physical Therapist | Not yet tested for validity and reliability\(^8\). Has no total score; therefore cannot be statistically correlated to other tools\(^8\). Described as a scoring system that does not adequately quantify the | Unable to obtain
Developed from the 1996 Johns Hopkins Hospital FACS tool\(^8\). |
### Mobility Strategies for Adult Hospitalized Patients on Medical/Surgical and Critical Care Units

**Mobility Tools, Scales, and Instruments from the Evidence**

| Easy to score and quick to administer  
(System has been described as confusing and difficult to remember) | functional abilities of the lower level bed bound patient and for patients not stable enough for mobilization in acute care |
|---------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
### Mobility Assessment Tools: Grid #2

#### Informant-Based Ambulation

<table>
<thead>
<tr>
<th>Instrument/Tool/Scale</th>
<th>Description</th>
<th>Administration</th>
<th>Psychometrics</th>
<th>Access/Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>23. Functional Mobility Assessment Test (FMAT)(^{18,28})</td>
<td>Focuses on functional limitations in gait, strength, and balance consisting of 10 items scored on a 7 point Likert scale (6 = completely agree; 1 = completely disagree; 0 = does not apply to me): Carry out daily routine, Comfort needs, Health needs, Operate with independence &amp; safety, Reaching/carrying out tasks at different surface heights, Transfer from one surface to another, Personal care tasks, Indoor mobility, Outdoor mobility, Personal + public transportation</td>
<td>Administered in 6 to 30 minutes by: Physical therapist, Physician</td>
<td>High inter-rater reliability (*ICC ≥ 0.87(^{18}))</td>
<td>Unable to obtain</td>
</tr>
<tr>
<td>24. Functional Status Questionnaire (Jette, 1986)</td>
<td>Informant/interview based functional assessment test consisting of either 10 items or 5 sections to evaluate change in ADLs resulting from sudden</td>
<td>Administered in 6 to 30 minutes by: Physical therapist</td>
<td>Interrater and intra-rater reliability have not been established(^{26})</td>
<td><a href="http://www.hospitalmedicine.org/geriresource/toolbox/pdfs/function_status_questionnaire.pdf">http://www.hospitalmedicine.org/geriresource/toolbox/pdfs/function_status_questionnaire.pdf</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td></td>
<td></td>
</tr>
<tr>
<td>event or illness.</td>
<td>10 item version uses a 0 to 3 category ordinal scale to rate responses (0 = no change from pre-injury; 3 = complete dependence on others or person does not perform that activity at all). Scores range from a low of 0 (complete dependence) to a high of 27 (independent); score of 28 = death. Functional domains include:  • Executive (cognitive) functioning  • Social integration  • Personal care  • Ambulation  • Standard of living  • Home management  • Travel  • Finances  • Major activity (work or school)  • Leisure/recreation</td>
<td>Physician</td>
<td>No floor or ceiling effects shown&lt;sup&gt;26&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td>5 section version uses a 0 to 4 scale to rate responses (0 = did not do; 4 = did with no difficulty).</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Cecelia L. Crawford, DNP, RN; ©Kaiser Permanente SCAL Regional Nursing Research Program; November 14, 2013; Updated April 2014
### Mobility Strategies for Adult Hospitalized Patients on Medical/Surgical and Critical Care Units

#### Mobility Tools, Scales, and Instruments from the Evidence

<table>
<thead>
<tr>
<th>Sections include:</th>
<th>Administered in 10 to 15 minutes by:</th>
<th>Excellent interrater reliability (*ICC = 0.901 to 0.95)(^\text{15})</th>
<th><a href="http://www.hospitalmedicine.org/geriresource/toolbox/pdfs/instrumental_activities.pdf">http://www.hospitalmedicine.org/geriresource/toolbox/pdfs/instrumental_activities.pdf</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Physical function of ADLs</td>
<td>Multi-disciplinary</td>
<td>High reliability among multidisciplinary raters(^\text{15})</td>
<td></td>
</tr>
<tr>
<td>• Psychological function</td>
<td>Nurse</td>
<td>*Interclass Correlation Coefficient</td>
<td></td>
</tr>
<tr>
<td>• Role function</td>
<td>Physician</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Social function</td>
<td>Occupational therapist</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Variety of performance measures (work situation, illness, reduction of activities due to illness, sexual relationships, health attitude, social interactions)</td>
<td>Administered in 10 to 15 minutes by:</td>
<td>Excellent interrater reliability (*ICC = 0.901 to 0.95)(^\text{15})</td>
<td><a href="http://www.hospitalmedicine.org/geriresource/toolbox/pdfs/instrumental_activities.pdf">http://www.hospitalmedicine.org/geriresource/toolbox/pdfs/instrumental_activities.pdf</a></td>
</tr>
<tr>
<td>• Maximum score of 100 = Good; 87 and below = Warning</td>
<td>Multi-disciplinary</td>
<td>High reliability among multidisciplinary raters(^\text{15})</td>
<td></td>
</tr>
</tbody>
</table>

25. **Instrumental Activities of Daily Living\(^\text{3,33}\)**

(Also see Lawton IADL in Grid #3)

Informant based functional assessment test that assesses levels at which an older adult can perform 7 tasks required for independent living. Scores range from 0 to 7 (higher score = greater independence)

- Functions include using telephone, getting to places beyond walking distance, shopping for groceries, preparing meals, doing housework, taking medications, managing finances

*Interclass Correlation Coefficient*
### Mobility Strategies for Adult Hospitalized Patients on Medical/Surgical and Critical Care Units

*Mobility Tools, Scales, and Instruments from the Evidence*

| 26. Older American Resources and Services (OARS) Multidimensional Functional Assessment Questionnaire (OMFAQ)\(^{13,39}\) (OARS, 1975) | Screening assessment for physical function similar to Katz ADL scale; includes bathing, dressing, grooming, and continence. Relies on self-report via a structured questionnaire. Divided into part A (Multidimensional Functional Assessment) and part B (Services Assessment Questionnaire).  
- **Part A:** dimensions of functioning:  
  - Social Resources  
  - Economic Resources  
  - Mental Health  
  - Physical Health  
  - Ability to carry out ADLs  
- Graded on a 6-point scale ranging from 6 (impairment) and 1 (non-impairment)  
- Scores summed for a Cumulative Impairment Score (CIS) (Maximum score = 30 (totally impaired); minimum = 5 (excellent functioning in all areas))  
- Scores below ten suggest excellent functioning; | Administered in 45 minutes by: Nurse | Moderate to high interrater reliability (*ICC = 0.60 to 0.87 depending on assessment section; 0.74% total agreement)\(^{39}\)  
Excellent test-retest reliability (ICC = 0.71 to 0.82, depending on assessment section)\(^{39}\)  
Content, consensual, and criterion validity established\(^{39}\)  
Evidence of reliability supporting application in group assessment\(^{14}\)  
### Mobility Strategies for Adult Hospitalized Patients on Medical/Surgical and Critical Care Units

**Mobility Tools, Scales, and Instruments from the Evidence**

<table>
<thead>
<tr>
<th>Scales</th>
<th>Description</th>
<th>Administered by</th>
<th>Reliability/Consistency</th>
</tr>
</thead>
</table>
| 27. Physical Self-Maintenance Scales (activities of daily living and instrumental ADLs) | Informant based functional assessment test that assesses ADLs and IADLs. Widely used in elderly people.  
- ADLs (0 to 6 scale): toileting, feeding, dressing, grooming, ambulation, bathing  
- IADLs (0 to 8 scale): Telephone use, shopping, food preparation, housekeeping, laundry, mode of transportation, medication responsibility, and finances | Administered in 5 minutes by:  
- Multi-disciplinary Nurse  
- Physician  
- Occupational therapist | Excellent intrarrater reliability (*ICC = 0.81 to 0.94)  
High reliability among multidisciplinary raters  
*Interclass Correlation Coefficient |  
http://www.outcomesdatabase.org/print/688 |
### Mobility Assessment Tools: Grid #3

**Mobility & Functional Measures other than Ambulation**

<table>
<thead>
<tr>
<th>Instrument/Tool/Scale</th>
<th>Description</th>
<th>Administration</th>
<th>Psychometrics</th>
<th>Access/Resources</th>
</tr>
</thead>
</table>
| 28. 5 Times Sit to Stand Test (5xSST or FTSST)²⁶ | Performance-based measure of functional lower limb muscle strength; may be useful in quantifying functional change of transitional movements. Speed, time, and assist level documented. Inability to complete 5 repetitions = test failure.  
   - Use FIM until patient reaches a 7, then include 5xSST  
   - Patient sits with arms folded across chest; back against an armchair (impaired arm may be in sling or side)  
   - Keep testing chair consistent  
   - Patient stands up and sits down 5 times as quickly as possible, without touching back of chair  
   - 1 practice trial before test  
   - No talking during test | Administered in 5 minutes or less by:  
   - Physical therapist | Poor to excellent test-retest reliability (*ICC = 0.45 to 0.99)²⁶  
   - Excellent interrater reliability (ICC = 0.99)²⁶  
   - Excellent intra-rater reliability (ICC = 0.97)²⁶ | [http://web.missouri.edu/~proste/tool/5x-STS.rtf](http://web.missouri.edu/~proste/tool/5x-STS.rtf) |
| 29. Berg Balance Scale/Test | 14-item tool to evaluate fall risk + static and dynamic balance in elderly, Parkinson’s population, and acute and chronic stroke patients. Used in a variety of healthcare settings. Assesses patient in standing position using an ordinal scale from 0 to 4 with maximum score of 56 (higher score = better balance). Includes: • Sitting with back unsupported but feet supported • Transfers • Sitting to standing • Standing unsupported/on 1 leg • Reaching forward with arm while standing • Turning to look behind over left and right shoulders while standing • Turn 360 degrees • Place alternate foot on step or stool while standing unsupported • Stand unsupported, 1 foot in front • Pick up object from floor from standing | Administered in 10 to 20 minutes by: Physiotherapist | Criterion tests have yielded valid and reliable measurements of balance in elderly people\(^{40,44}\) and persons with acute/chronic strokes\(^{23}\) Excellent test-retest reliability (*ICC = 0.72 to 0.98\(^{26}\) Excellent intra-rater reliability \(^{26,40}\) (ICC = 0.97) High face validity\(^{26,40}\) High interrater reliability\(^{40}\) in subjects without impairment (ICC = 1.00\(^{44}\)) High interrater reliability in subjects with strokes (ICC = 0.84\(^{26}\) to 0.995\(^{44}\)) | http://www.fallsa.com.au/cms/documents/hp/Berg_Balance_Scale.pdf http://www.fallpreventiontaskforce.org/pdf/BergBalanceScale.pdf |
### Mobility Strategies for Adult Hospitalized Patients on Medical/Surgical and Critical Care Units

*Mobility Tools, Scales, and Instruments from the Evidence*

<table>
<thead>
<tr>
<th>Mobility Tool</th>
<th>Intercorrelation Correlation Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Intercorrelation Correlation Coefficient</em></td>
<td>Interrater reliability = 0.98</td>
</tr>
<tr>
<td></td>
<td><em>(Note: as a Fall risk assessment tool)</em></td>
</tr>
<tr>
<td></td>
<td>Content validity established</td>
</tr>
</tbody>
</table>

Cecelia L. Crawford, DNP, RN; ©Kaiser Permanente SCAL Regional Nursing Research Program; November 14, 2013; Updated April 2014
| 30. Chelsea Critical Care Physical Assessment Tool (CPAx)\(^4\) | A 10-item assessment tool that rates on a 0 to 5 leveling system. Examines respiratory function, cough, moving in bed (ie rolling), supine to sitting on edge of bed, dynamic sitting (sit on edge of bed/unsupported sitting), standing balance, sit to stand (start in \(\leq 90^\circ\) hip flexion), transfer from bed to chair, stepping, grip strength (predicted mean for age/gender on stronger hand). Maximum score is 50. | Physiotherapist | For the general adult critical care population.\(^4\)
- Content validity = 1.00\(^4\)
- Construct validity: moderate to strong correlations between CPAx score and all secondary measures\(^4\)
- Internal consistency: \(a = 0.798\)^\(^4\)
- Interrater reliability (\(n = 5\)): Kappa = 0.988\(^4\) | Chelsea CC Phys Assess Tool1.doc | Chelsea CC Phys Assess Tool2 and 3.jj |
### Mobility Strategies for Adult Hospitalized Patients on Medical/Surgical and Critical Care Units

*Mobility Tools, Scales, and Instruments from the Evidence*

| 31. de Morton Mobility Index (DEMMI) 6:40 | Mobility outcome measure originally developed for the older acute medical population; has been validated for use in transition care programs. 15 item hierarchical mobility challenge instrument scored on a interval level scale from 0 to 100  
- 11 dichotomous items (0 or 1)  
- 4 items have three response options (0, 1, or 2).  
- Raw ordinal DEMMI score out of 19 converted to interval-level DEMMI score out of 100 (using a conversion table) | Administered in 8 to 9 minutes by:  
Physiotherapist  
Allied health assistant | Extensive clinimetric evaluation (Rasch, reliability, validity, responsiveness to change, and minimally clinically important difference [MCID])  
Overcomes ceiling/floor effects of other instruments  

| 32. Dionne’s Egress Test (DET) 31 | A performance-based screening tool to analyze the mobility of patients with extreme obesity; used to determine if a patient with extreme obesity can safely mobilize out of bed or if mechanical conveyance is indicated. Considered | Nurse  
Physical Therapist | One completed research study to date  
Moderate level of inter-rater reliability (K=0.659)  
No validity data | Unable to obtain |
### Mobility Strategies for Adult Hospitalized Patients on Medical/Surgical and Critical Care Units

**Mobility Tools, Scales, and Instruments from the Evidence**

<table>
<thead>
<tr>
<th>Test</th>
<th>Description</th>
<th>Administration</th>
<th>Relevance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>33. Functional Reach Test</strong>&lt;sup&gt;26,28,29,44&lt;/sup&gt;</td>
<td>Performance-based test that measures reaching while standing (Functional Reach) or sitting (Modified Functional Reach). Used as a marker of physical frailty. 3 trials with average of last two trials.</td>
<td>Administered in 5 minutes by: Physical therapist</td>
<td>Criterion tests have yielded valid measurements of balance in elderly people&lt;sup&gt;44&lt;/sup&gt; Adequate to excellent criterion validity, depending on test and patient population (<em>r</em> = 0.42 to 0.71)&lt;sup&gt;26&lt;/sup&gt; Poor to excellent test-retest reliability (<em>ICC</em> = 0.42 to 0.95)&lt;sup&gt;26&lt;/sup&gt; Adequate to excellent</td>
</tr>
<tr>
<td></td>
<td>No data for variability of scores due to small sample size (Total N=15; PT n = 8; RN n = 7)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

Ceclia L. Crawford, DNP, RN; ©Kaiser Permanente SCAL Regional Nursing Research Program; November 14, 2013; Updated April 2014
| Mobility Strategies for Adult Hospitalized Patients on Medical/Surgical and Critical Care Units |
| Mobility Tools, Scales, and Instruments from the Evidence |

- far as forward as possible without taking a step
  - 3rd metacarpal reach is recorded in inches
  - Difference between start and end position is reach distance

- excellent intrarater reliability (ICC = 0.74 to 0.92)\(^{26}\)

- Adequate to excellent interrater reliability (ICC = 0.64 to 0.99)\(^{26,44}\)

- High interrater reliability in subjects with strokes (ICC = 0.995)\(^{44}\)

- High interrater reliability for older people with hip fracture (ICC = 0.89)\(^{29}\)

*Interclass Correlation Coefficient

- Sensitivity 75%\(^{26}\) to 76%\(^{28}\)
- Specificity 34%\(^{28}\) to 67%\(^{26}\)

(\textit{Note: }as a Fall risk assessment tool)\(^{28}\)
| **Mobility Strategies for Adult Hospitalized Patients on Medical/Surgical and Critical Care Units**  
*Mobility Tools, Scales, and Instruments from the Evidence* |
|---|---|---|---|
| **34. Hospital Admission Risk Profile (HARP)**[^1;11;17] | Risk assessment tool that classifies patients as low, intermediate, or high risk for functional decline based on age, cognition, and pre-hospital ADLS, Independent ADLs, and cognitive status (abbreviated Mini-Mental Status Exam [MMSE]). Scores range from 0 to 5 (higher = greater risk) | Nurse | Validated tool that is practical and easy to use[^11]  
Identifies and stratifies older medical inpatients at risk for functional decline during and after acute hospital admission[^11]  
| **35. Lawton Instrumental ADL Scale[^12;13;17]** | Evaluates self-reported independent ADLs activities for older adults including medication management, | Administered in 10 to 15 minutes by: Nurse | Few studies have been conducted to test this tool’s psychometric properties[^12] | [http://evidence2practice.org/topics/index.htm](http://evidence2practice.org/topics/index.htm)  

[^1]: High face validity for stroke patients ($r = 0.71$)\(^{26}\)  
[^2]: Significant score differences noted between fallers and nonfallers\(^{26}\)
## Mobility Strategies for Adult Hospitalized Patients on Medical/Surgical and Critical Care Units

### Mobility Tools, Scales, and Instruments from the Evidence

<table>
<thead>
<tr>
<th>Housekeeping, food preparation, transportation, shopping, managing finances, laundry. Can be used in acute hospital setting. ● Valuable for evaluating patients with early-stage disease to (1) assess the level of disease and (2) determine the patient’s ability to care for self ● Rating scale ranges from 1 (greater independence) to 4 (Cannot not complete activity) (higher score = greater dependence) ● Alternate rating system uses scores from 1 to 0 (highest to lowest functional level) ● Summary score ranges from 0 (low function) to 8 (high function)</th>
<th>Inter-rater reliability = 0.85(^{12}) Validity testing found correlations with other tools were significant at 0.01 or 0.05 levels(^{12}) May not be sensitive to small incremental changes in function(^{12})</th>
<th><a href="http://consultgerin.org/uploads/File/trythis/try_th">http://consultgerin.org/uploads/File/trythis/try_th</a> is_23.pdf</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measured muscle strength and symmetry in critical care patients using a ordinal scale of 0 to 5 with a maximum score of 40 (combining left and right limb values) ● Does not account for range of motion or level of resistance</td>
<td>Administered in 15 minutes by: Physical therapist Nurse</td>
<td>Inter-rater agreement (k = 0.77) to 0.78 (muscle strength in radial palsy)(^{24}) Intra-rater agreement (k = 0.82) to 0.86 (muscle strength)</td>
</tr>
</tbody>
</table>

---

Cecelia L. Crawford, DNP, RN; ©Kaiser Permanente SCAL Regional Nursing Research Program; November 14, 2013; Updated April 2014
<table>
<thead>
<tr>
<th><strong>Mobility Strategies for Adult Hospitalized Patients on Medical/Surgical and Critical Care Units</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mobility Tools, Scales, and Instruments from the Evidence</strong></td>
</tr>
</tbody>
</table>
| • Scale score 5 = maximal strength on 4 to 6 bilateral muscle groups  
  o 4 groups = shoulder adduction, elbow extension, hip flexion, knee extension  
  o 6 groups = shoulder adduction, elbow flexion, wrist extension, hip flexion, knee extension, ankle dorsiflexion | in radial palsy)\textsuperscript{24}  
  Spearman’s correlation coefficient = 0.78  
  (muscle strength in radial palsy)\textsuperscript{24} |
| 37. Physical Functional ICU Test (PFIT)\textsuperscript{4,9} |  
  Physical function test that assesses and measures the critical care patient’s ability to stand up from a chair and march in place  
  • Specifically developed for ICU patients who are unable to mobilize away from the bedside  
  • Used as both an outcome measure and to prescribed exercise  
  • Examines 4 domains: Endurance, muscle strength, exercise capacity, and functional ability  
  • Involves sitting patient out of bed in a chair | Physiotherapist  
  Interrater reliability *ICC ≥ 0.99 for all domains\textsuperscript{9}  
  Responsiveness:\textsuperscript{9}  
  $p = 0.02 – 0.005$  
  *Interclass Correlation Coefficient |
|  | Unable to obtain |
### 38. Postural Assessment Scale for Stroke patients (PASS)<sup>1,2,3</sup>

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
<th>Validations</th>
</tr>
</thead>
</table>
| 12-item balance assessment tool designed specifically stroke patients. Each item rated on ordinal scale from 0 to 3 for maximum score of 36 (higher score = better balance). Composed of a maintaining posture (PASS-MP) and changing posture (PASS-CP) sub-scores based on items assessed in lying and standing positions: | - Sitting with back unsupported but feet supported  
- Sitting to standing  
- Sitting on edge of mat to supine  
- Supine to paretic side/nonparetic side to sitting up on edge of mat  
- Standing with and without support  
- Pick up object from floor from standing position  
- Standing to sitting and standing on 1 leg | Administered in 1-10 minutes with a mat and stopwatch  
One of the most valid and reliable clinical assessments of postural control in stroke patients during first 3 months after stroke<sup>1</sup>  
Good construct validity with FIM (<i>r</i> = 0.73)<sup>1</sup>  
Excellent predictive values (<i>r</i> = 0.75)<sup>1</sup>  
High internal consistency (<i>Cronbach’s α</i> = 0.95)<sup>1</sup>  
High test-retest reliability (<i>k</i> = 0.72)<sup>1</sup>  
High interrater reliability (<i>k</i> = 0.88)<sup>1</sup> |

### 39. PULSES Profile<sup>13</sup> (Moskowitz, 1957)

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
<th>Validations</th>
</tr>
</thead>
</table>
| Measures functional performance in mobility, self care, medical status, and psychosocial factors. | Administered in 15 to 20 minutes by:  
Internal consistency supported with Cronbach’s <i>α</i> = 0.98 | [http://evidence2practice.org/topics/index.htm](http://evidence2practice.org/topics/index.htm) |
### Mobility Strategies for Adult Hospitalized Patients on Medical/Surgical and Critical Care Units

*Mobility Tools, Scales, and Instruments from the Evidence*

<table>
<thead>
<tr>
<th>P = Physical condition</th>
<th>U = Upper limb function</th>
<th>L = Lower limb function</th>
<th>S = Sensory components</th>
<th>E = Excretory functions</th>
<th>S = Support factors</th>
<th>Nurse</th>
<th>0.74 admission and 0.78 discharge scores&lt;sup&gt;20&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PULSES</strong>&lt;sup&gt;20&lt;/sup&gt;</td>
<td><strong>Nurse</strong></td>
<td><strong>High correlation for admission FIM + PULSES scores (-0.82) and discharge scores (-0.88)</strong>&lt;sup&gt;20&lt;/sup&gt;</td>
<td>Good evidence for construct + convergent validity&lt;sup&gt;20&lt;/sup&gt;</td>
<td><strong>Admission (cut off score 18) sensitivity = 87% + specificity = 42%</strong>&lt;sup&gt;20&lt;/sup&gt;</td>
<td><strong>Admission (cut off score 20) sensitivity = 95% + specificity = 15%</strong>&lt;sup&gt;20&lt;/sup&gt;</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

40. **SPICES**<sup>13,17</sup> (Fulmer, 1991)

<table>
<thead>
<tr>
<th>Acronym for common syndromes of hospitalized older adults requiring nursing intervention. Examines components of SPICES: Sleep, Problems</th>
<th>Nurse</th>
<th>Psychometric testing not done&lt;sup&gt;10&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Used extensively to assess older adults in the</strong></td>
<td><strong><a href="http://evidence2practice.org/topics/index.htm">http://evidence2practice.org/topics/index.htm</a></strong></td>
<td><strong><a href="http://consultgerirn.org/uploads/File/trythis/trythis_1.pdf">http://consultgerirn.org/uploads/File/trythis/trythis_1.pdf</a></strong></td>
</tr>
</tbody>
</table>

---

Cecelia L. Crawford, DNP, RN; ©Kaiser Permanente SCAL Regional Nursing Research Program; November 14, 2013; Updated April 2014
## Mobility Strategies for Adult Hospitalized Patients on Medical/Surgical and Critical Care Units

### Mobility Tools, Scales, and Instruments from the Evidence

| 41. Step Test\(^{26, 29}\) | Balance test that evaluates the number of time a patient can step up onto a 5cm block without hand support for 15 seconds for each leg.  
- Unable to stand unsupported = 0 for both lower legs | Administered in less than 5 minutes by:  
Physiotherapist | Hospital setting, both healthy and frail\(^{10}\)  
For older people following hip fx:\(^{29}\)  
- *ICC = 0.92 (affected leg)\(^{29}\)  
- ICC = 0.85 (non-affected leg)\(^ {29}\)  
Excellent test-retest reliability (ICC = 0.88 to >0.90)\(^ {26}\)  
Excellent intra-rater reliability (ICC = 0.981 to 0.995)\(^ {26}\)  
Excellent inter-rater reliability (ICC = 0.996 to 0.999)\(^ {26}\)  
*Interclass Correlation Coefficient  
Sensitivity = 85%  
+ Specificity = 59% (to predict falls) | Unable to obtain; description at:  
Mobility Strategies for Adult Hospitalized Patients on Medical/Surgical and Critical Care Units

Mobility Tools, Scales, and Instruments from the Evidence

Reference List


Mobility Strategies for Adult Hospitalized Patients on Medical/Surgical and Critical Care Units

Mobility Tools, Scales, and Instruments from the Evidence


Mobility Strategies for Adult Hospitalized Patients on Medical/Surgical and Critical Care Units

Mobility Tools, Scales, and Instruments from the Evidence


Cecelia L. Crawford, DNP, RN; ©Kaiser Permanente SCAL Regional Nursing Research Program; November 14, 2013; Updated April 2014


Mobility Strategies for Adult Hospitalized Patients on Medical/Surgical and Critical Care Units

Mobility Tools, Scales, and Instruments from the Evidence

Evidence Search Strategies: A structured database search was conducted for current tools used in assessing and scoring mobility/ambulation for hospitalized adults on Critical Care Units and Medical/Surgical Units. The open year search was conducted from October to November 2013 via electronic databases (PubMed, BMJ, Science Direct, Cochran Review, CINAHL, and Yahoo) using the search terms of “mobility,” “ambulation,” “assessment,” “score,” “tool*,” “test*,” “adult,” “outcomes,” “measure*,” and “metrics,” either alone, mixed, or in combination. This search yielded 23 relevant hits and, after eliminating 7 duplicates, 16 articles were selected for inclusion. Sixteen additional references and sources were located via reference links and web searches in order to determine tool/instrument psychometric properties. Four additional references from the October 2013 Mobility Definitions, Operationalization, and Measurements Summary were included, with a total of 43 relevant articles and sources for final evidence summary. Result limitations include the limited set of tools for adults in the acute care setting. There was difficulty separating ambulation and mobility assessment tools/scales from fall risk assessment and pressure ulcer assessment tools/scales. Additional limitations include a lack of research studies specific to nurse-developed mobility/ambulation tools, small sample size, and tool testing within diverse patient populations, which limits the ability to generalize the evidence to critical care patients, medical surgical patients, and the frail elderly.
### Mobility Strategies for Adult Hospitalized Patients on Medical/Surgical and Critical Care Units

**Mobility Tools, Scales, and Instruments from the Evidence**

#### Electronic Database Search Methodology

**Date(s):** October 9, 2013; October 18, 2013 to November 4, 2013

**Literature search topic/clinical question:** *“What are the current tools used for assessing and scoring mobility/ambulation for hospitalized adults on Critical Care Units and Medical/Surgical Units?”*

**Inclusion Criteria:** Hospitalized adults, Critical Care Units, Intensive Care Units, Medical/Surgical Units, acute care, functional/mobility/ambulation tool/scale/score/instruments

**Exclusion Criteria:** Spinal cord injury; healthcare settings other than acute care (skilled nursing facilities, convalescent homes, outpatient clinics), community dwelling adults, tool/scale/score/instruments other than ones related to functional/mobility/ambulation

<table>
<thead>
<tr>
<th>Database</th>
<th>Key Word(s) and/or Controlled Vocabulary Terms #</th>
<th>Total References Identified (hits)</th>
<th>No. of Relevant References</th>
<th>No. of Total Duplicate Articles</th>
<th>No. of Articles Selected for Review</th>
<th>No. of Articles Excluded</th>
<th>Final Total Relevant References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name: PubMed</td>
<td>Mobility + assessment + score + tool + adult</td>
<td>73</td>
<td>4</td>
<td>0*</td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Name: CINAHL</td>
<td>Mobility assessment + adult</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Name: BMJ</td>
<td>Mobility + assessment tools</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Name: ScienceDirect</td>
<td>Mobility assessment + adult</td>
<td>11</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Name: Cochrane Review</td>
<td>Mobility + assessment + score + tool + adult</td>
<td>188</td>
<td>5</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Name: Yahoo</td>
<td>Mobility assessment tools</td>
<td>60</td>
<td>6</td>
<td>2</td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Name: Yahoo</td>
<td>Ambulation tests</td>
<td>60</td>
<td>6</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>“Ambulation outcome measures”</td>
<td>60</td>
<td>6</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

#Controlled vocabulary (subject terms, MESH terms, tagged terms specific to database)

*Use the first database as the main comparison for subsequent database searches and identifying duplicate articles*
# Mobility Strategies for Adult Hospitalized Patients on Medical/Surgical and Critical Care Units

## Mobility Tools, Scales, and Instruments from the Evidence

<table>
<thead>
<tr>
<th>Database</th>
<th>Key Word(s) and/or Controlled Vocabulary Terms</th>
<th>Total References Identified (hits)</th>
<th>No. of Relevant References</th>
<th>No. of Total Duplicate Articles</th>
<th>No. of Articles Selected for Review</th>
<th>No. of Articles Excluded</th>
<th>Final Total Relevant References</th>
</tr>
</thead>
</table>
| **Name:** PubMed  
**Years:** Open | “Ambulation outcomes” + tests  
“Ambulation outcome” + measures  
“Ambulation tests”  
“Ambulation outcomes” + tools  
“Ambulation outcome” + tools  
“Ambulation outcome” + metric OR metrics | 3  
3  
5  
0  
1  
0 | 1  
1  
0  
0  
1  
0 | 1  
1  
0  
0  
1  
0 | 0  
0  
0  
0  
0  
0 | 0  
0  
0  
0  
0  
0 | 0  
0  
0  
0  
0  
0 |
| **Name:** CINAHL  
**Years:** Open | “Ambulation outcomes” + tests  
“Ambulation outcome” + measures | 13  
7 | 0  
1 | 0  
1 | 0  
0 | 0  
0 | 0  
0 |

**TOTALS** | **508** | **23** | **7** | **16** | **0** | **16** |

*Controlled vocabulary (subject terms, MESH terms, tagged terms specific to database)*  
*Use the first database as the main comparison for subsequent database searches and identifying duplicate articles*

### **Reference/Contextual Links or Mobility Evidence Summary**

1. Benaim et al. (1999)  
2. Burtin et al. (2009)  
3. Cowie et al. (2011)  
4. de Morton et al. (2007)  
9. Haywood et al. (2005)  
10. Hokoishi et al. (2001)  
11. Kleinpell et al. (2008)  
12. Kumar et al. (2013)  
13. Lam et al. (2008)  
15. Nolan et al. (2008)  
17. Professional Network of the Chartered Society of Physiotherapy (2013)  
18. Rehabilitation Institute of Chicago (2010)  
19. Schweickert et al. (2009)  
20. Skumlien et al. (2006)  
22. Thrush et al. (2012)  
23. University of Western Ontario (n.d.)  
25. Winkelman et al. (2012)  
26. Wolf et al. (1999)  

### **Additional articles/information found in references lists and/or article review**

**Total Articles Included in Tools Literature Review/Psychometric Properties Database (16) + Contextual Links (27) = 43**

Cecelia L. Crawford, DNP, RN; ©Kaiser Permanente SCAL Regional Nursing Research Program; November 14, 2013; Updated April 2014
2 Minute Walk Test Instructions

**General Information:** Individual walks without assistance for 2 minutes and the distance is measured

- Start timing when the individual is instructed to “Go”
- Stop timing at 2 minutes
- Assistive devices can be used but should be kept consistent and documented from test to test
- If physical assistance is required to walk, this test should not be performed
- A measuring wheel is helpful to determine distance walked
- Test should be performed at the fastest speed possible

**Set-up and equipment:**

- Ensure the hallway free of obstacles
- Stopwatch

**Patient Instructions:**

“Cover as much ground as possible over 2 minutes. Walk continuously if possible, but do not be concerned if you need to slow down or stop to rest. The goal is to feel at the end of the test that more ground could not have been covered in the 2 minutes.”

2 Minute Walk Test

Name: __________________________________________________________

Assistive Device and/or Bracing Used: ________________________________

Date: ______
Distance ambulated in 2 minutes: __________________

Date: ______
Distance ambulated in 2 minutes: __________________

Date: ______
Distance ambulated in 2 minutes: __________________

Date: ______
Distance ambulated in 2 minutes: __________________

Downloaded from: www.rehabmeasures.org
Mobility Strategies for Adult Hospitalized Patients on Medical/Surgical and Critical Care Units

Mobility Tools, Scales, and Instruments from the Evidence

Timed 10-Meter Walk Test

**General Information:** individual walks without assistance 10 meters (32.8 feet) and the time is measured for the intermediate 6 meters (19.7 feet) to allow for acceleration and deceleration. Can be performed at patient’s preferred walking speed or fastest speed possible. Collect 3 trials and calculate the average.
- Start timing when the toes of the leading foot crosses the 2-meter mark
- Stop timing when the toes of the leading foot crosses the 8-meter mark
- Assistive devices can be used but should be kept consistent and documented from test to test
- If physical assistance is required to walk, this should not be performed
- Documentation should include the speed tested (preferred vs. fast)

**Set-up:**
- Measure and mark a 10-meter walkway
- Add a mark at 2-meters
- Add a mark at 8-meters

**Patient Instructions:**
Normal comfortable speed: “I will say ready, set, go. When I say go, walk at your normal comfortable speed until I say stop”
Maximum speed trials: “I will say ready, set, go. When I say go, walk as fast as you safely can until I say stop”

**10-Meter Walk Test Form**

- Name:___________________________________________________________
- Assistive Device and/or Bracing Used:______________________________________________
- Date:________
- Seconds to ambulate 10 meters (only the middle 6 meters are timed)
  - Self-Selected Velocity: Trial 1 _______ sec.___ Fast Velocity: Trial 1 _______ sec.___
  - Self-Selected Velocity: Trial 2 _______ sec.___ Fast Velocity: Trial 2 _______ sec.___
  - Self-Selected Velocity: Trial 3 _______sec.___ Fast Velocity: Trial 3 _______ sec.___
  - Self-Selected Velocity: Average time____sec.__ Fast Velocity: Average time____sec.__
  - Actual velocity: Divide 6 by the average seconds
  - Average Self-Selected Velocity:_______ m/s
  - Average Fast-Velocity:_______________ m/s

Downloaded from: [www.rehabmeasures.org](http://www.rehabmeasures.org)
Massachusetts General Hospital
Functional Ambulation Classification

General Information:
- Categorizes patients according to basic motor skills necessary for functional ambulation
- Does not assess endurance

Instructions:
- Use the definitions below to classify the patient to a category
- Patients should be rated at their most independent level (supervision or physical assistance required to ambulate)
  - As an example, the patient is able to ambulate independently with a walker on level surfaces but requires can ambulate with crutches with supervision, the patient should receive the rating of "5" (ambulator— independent, level surfaces only).
- Only rate patients on the ability to ambulate.
- The ability to rise from sitting to standing should not be included

Definitions:
- **Ambulation:** Individual is able to walk at least 10 feet outside the parallel bars with supervision or physical assistance from only one person. Mechanical assistance from any device or ambulation aid (except parallel bars) may be used.
  - **Level surface:** Tile, rugs, pavement
  - **Non-level surface:** Grass, gravel, dirt, snow, ice
  - **Stairs:** Up and down at least seven steps with rail
  - **Incline:** Up and down 5-ft (1.52-m) incline of 30 degrees or greater
- **Supervision:** the patient is able to ambulate without manual contact from another person but requires stand-by guarding of one person for safety. This may be the result of poor judgment, questionable cardiac status, or verbal cues required to complete the task.
- **Physical assistance level –I:** manual contact is required from one person during ambulation to prevent falling. Manual contact may be continuous or intermittent light touch to assist balance or coordination.
- **Physical assistance Level –II:** manual contact of one person is required during ambulation to prevent falling. Manual contact may be continuous and necessary to support body weight and/or to maintain balance or assist coordination.
- **Independent:** ambulation is independent and without supervision or physical assistance from another person. The patient may utilize assistive devices (except parallel bars), orthoses, and prostheses.

Downloaded from [www.rehabmeasures.org](http://www.rehabmeasures.org)
Test instructions provided courtesy of Maureen Holden PT, PhD
Mobility Strategies for Adult Hospitalized Patients on Medical/Surgical and Critical Care Units

Mobility Tools, Scales, and Instruments from the Evidence

Massachusetts General Hospital
Functional Ambulation Classification

Categories (Holden et al, 1994):

<table>
<thead>
<tr>
<th>FAC Level</th>
<th>Ambulation Description</th>
<th>Definition</th>
</tr>
</thead>
</table>
| 1         | Nonfunctional          | • Unable to ambulate  
• Ambulates only in parallel bars  
• Requires supervision or physical assistance from > 1 person |
| 2         | Dependent, Level II    | • Requires manual contact of one person during ambulation on level surfaces  
• Manual contact is continuous and necessary to support body weight and/or to maintain balance or assist coordination |
| 3         | Dependent, Level I     | • Requires manual contact of one person during ambulation on level surfaces  
• Manual contact is continuous or intermittent light touch to assist balance or coordination |
| 4         | Dependent, Supervision | • Ambulation occurs on level surfaces without manual contact of another person  
• Requires stand-by guarding of one person because of poor judgment, questionable cardiac status, or the need for verbal cuing to complete the task |
| 5         | Independent, Level Surfaces Only | • Ambulate is independent on level surfaces  
• Requires supervision/physical assistance to negotiate stairs, inclines, or unlevel surfaces. |
| 6         | Independent, Level and Non-Level Surfaces | • Ambulation is independent on unlevel and level surfaces, stairs, and inclines. |

Reference: (Holden, Gill et al. 1984)

Mobility Strategies for Adult Hospitalized Patients on Medical/Surgical and Critical Care Units

Mobility Tools, Scales, and Instruments from the Evidence

MOBILITY

TIMED GET UP AND GO TEST

Performed with patient wearing regular footwear, using usual walking aid if needed, and sitting back in a chair with arm rest.

On the word, “Go”, the patient is asked to do the following:

1. Stand up from the arm chair
2. Walk 3 meters (in a line)
3. Turn
4. Walk back to chair
5. Sit down

Time the second effort.
Observe patient for postural stability, steppage, stride length and sway.

Scoring:

Normal: completes task in \( \leq 10 \) seconds.

Abnormal: completes task in \( \geq 20 \) seconds

Low scores correlate with good functional independence; high scores correlate with poor functional independence and higher risk of falls.


http://www.hospitalmedicine.org/geriresource/toolbox/pdfs/get_up_and_go_test.pdf
Purpose/intended Audience

Because we want everyone in our communities to have the healthiest lives possible, we are making our evidence reviews available to the communities we serve to help Californians and others lead healthier lives.

Integrative reviews and evidence summaries are provided as a community service for reference purposes only, and must be used only as specified in this disclaimer. These documents are intended for use by clinicians. If you are not a clinician and are reading these documents, you should understand that the information presented is intended and designed for use by those with experience and training in managing healthcare conditions. If you have questions about them, you should seek assistance from your clinician. The information contained in the evidence reviews is not intended to constitute the practice of medicine or nursing, including telemedicine or advice nursing.

Limitations On Use

These documents have been developed to assist clinicians by providing an analytical framework for the effective evaluation and treatment of selected common problems encountered in patients. These documents are not intended to establish a protocol for all patients with a particular condition. While evidence reviews provide one approach to evaluating a problem, clinical conditions may vary significantly from individual to individual. Therefore, clinicians must exercise independent professional judgment and make decisions based upon the situation presented.

Kaiser Permanente's documents were created using an evidence-based process; however, the strength of the evidence supporting these documents differs. Because there may be differing yet reasonable interpretations of the same evidence, it is likely that more than one viewpoint on any given healthcare condition exists. Many reviews will include a range of recommendations consistent with the existing state of the evidence.

All of the Kaiser Permanente integrative reviews and evidence summaries were developed from published research and non-research evidence and do not necessarily represent the views of all clinicians in Kaiser Permanente. These documents may also include recommendations that differ from certain federal or state health care mandates.

Intellectual Property Rights

Unless stated otherwise, all of these materials are protected by copyright and should not be reproduced or altered without express written permission from Kaiser Permanente. Permission is granted to view and use these documents on single personal computers for private use within your hospital or hospital system. No portion of these materials in any form may be distributed, licensed, sold or otherwise transferred to others.

The organizations within Kaiser Permanente retain all worldwide rights, title and interest in and to the documents provided (including, but not limited to, ownership of all copyrights and other intellectual property rights therein), as well as all rights, title and interest in and to their trademarks, service marks and trade names worldwide, including any goodwill associated therewith.
No Endorsement or Promotional Use

Any reference in these documents to a specific commercial product, process, or service by trade name, trademark, or manufacturer, does not constitute or imply an endorsement or recommendation by Kaiser Permanente. The views and opinions expressed in these documents may not be used for any advertising, promotional, or product endorsement purposes.

Disclaimer of All Warranties and Liabilities

Finally, although Kaiser Permanente believes that all of the information provided in its documents is accurate, specific recommendations derive from combining the best available evidence. Although we have sought to ensure that the documents accurately and fully reflect our view of the appropriate combination of evidence at the time of initial publication, we cannot anticipate changes and take no responsibility or assume any legal liability for the continued currency of the information or for the manner in which any person who references them may apply them to any particular patient. Kaiser Permanente does not assume any legal liability or responsibility for the completeness, clinical efficacy or value of any apparatus, product, or process described or referenced in the documents. We make no warranties regarding errors or omissions and assume no responsibility or liability for loss or damage resulting from the use of these documents.